



THE WEALTH OF NATIONS

Assignment 1

ABSTRACT

Data and Data Structure
Development of Data sets using Excel
Tableau

Busra ArlierMohyuddin

Data Technician Bootcamp

03/08/2023

Contents

Task 1 - Policies and Procedures	2
Task 2 Excel GDP Tasks	3
Task 2.1 - Set a password to protect the workbook.....	3
Task 2.2 - Highlight column C and change the data to display in the British Pound symbol.....	4
Task 2.3 - Turn GDP sheet into a table	4
Task 2.4 - Filter the ta	
ble to display only the information for 2019.	5
Task 2.5 - Create a chart that will only display the following data “Rank, Country and GDP – per capita (PPP)”	6
Task 2.6 - Using creative skills edit the chart: Add a title, Add X and Y axis labels and Make the chart visually pleasing	6
Task 2.7 - Move the chart to a new sheet and label it with a suitable name	7
Task 2.8 - Create a sort for the top 20 countries by GDP per capita	8
Task 2.9 - Create a new bar chart to display the top 20 countries by GDP from your sort and then move the chart to be underneath the table	82.10- Colour the background of the table
.....	9
Task 2.11- Create 3 Macro buttons: Print the sheet, Save the file, and Copy the sheet.....	10
Task 2.12- Using the copy macro, copy the sheet and then paste it into a new Word document keeping the formatting. Give the page a title “GDP(Gross Domestic Product)”	12
Task 2.13- Save your document as “Word Gross Domestic Product Report 1”	13
Task 2.14 Add header and footer on “Gross Domestic Product” sheet	13
Task 2.15- In the header enter your name and GLA DATA 1 in the three boxes	14
Task 2.16- In the footer add a date then Assignment 1 and Data Visualisation	14
Task 2.17- Return your view to normal.....	14
Task 2.18- Save your table as “Excel Gross domestic product report 1”	15
Task 2.19- Close your Word document only	15
Task 3 Tableau	15
3.1- Import Data.....	15
3.2- Set Relationships.....	15
3.3- Check data types.....	16
3.4- Build Charts.....	17
3.5- Filter the null values.....	18
3.6- Build Dashboard.....	19
Reflection	21

Task 1- Policies and Procedures

Policies and procedures provide clear guidelines on how employees and stakeholders should conduct themselves and handle various situations. This clarity ensures everyone is on the same page and reduces the likelihood of confusion or misunderstandings. Data protection law requires explicitly you to put in place data protection policies where proportionate. Effective data protection policies and procedures can help your organization to take practical steps to comply with your legal obligations.

Public data is information that can be shared, used, reused, and redistributed without restriction. It encompasses a range of formats and sizes such as data sets and statistics, as well as both processed structured data and raw unstructured data. Public data is typically kept and accessed on corporate or government websites and stored at businesses and other data providers. Open data is more accessible compared with public data. Open data is typically prepared and presented in structured formats and available to anyone on government websites. Meanwhile, public data encompasses both open data and data that's unstructured -- or public yet less accessible.

Private data dictates that certain information or whole data sets are made available only to designated individuals. Private data often contains information about people or businesses that would be too sensitive to share openly or downright detrimental when in the wrong hands. For businesses, private data regarding customers or employees can only be shared with specific individuals.

Overall, having well-defined data protection policies and procedures is essential for organizations to protect sensitive information, respect privacy rights, and demonstrate their commitment to data security and compliance with relevant laws and regulations. It helps build trust with customers, partners, and employees while mitigating potential risks associated with data breaches and non-compliance.

Task 2 Excel GDP Tasks

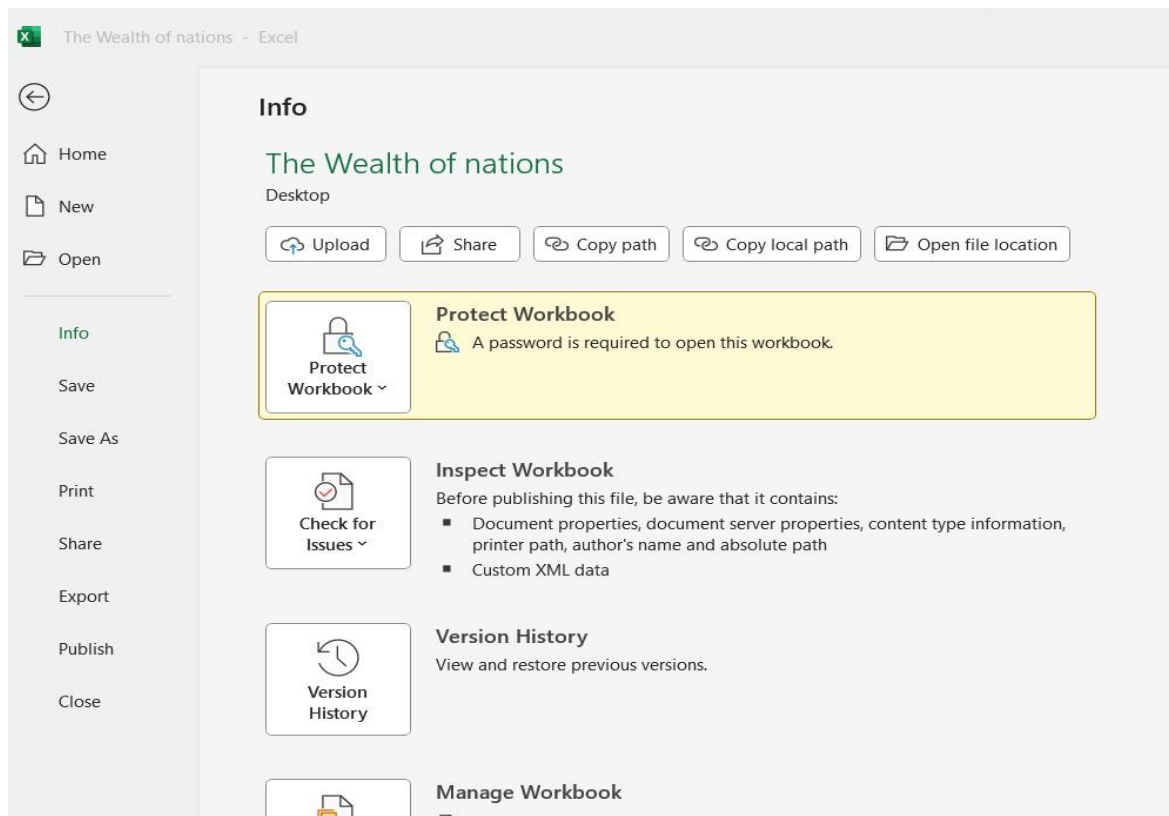
Task 2.1- Set a password to protect the workbook.

To set a password to protect the workbook,

Select File > Info → Select the Protect Workbook box and choose Encrypt with Password.

Enter a password in the Password box → select OK.

Confirm the password in the Re-enter Password box → select OK.



Screenshot 1



Screenshot 2

Task 2.2- Highlight column C and change the data to display in the British Pound symbol.

To change the data from \$ to £, Highlight the GDP-per-capita column → Click on Accounting Number Format → Select £ English (United Kingdom)

C
GDP - per capita (PPP)
\$190,513.00
\$180,367.00
\$123,965.00
\$115,874.00
\$97,341.00
\$90,044.00
\$86,781.00
\$84,600.00
\$81,798.00
\$71,549.00
\$70,800.00
\$68,628.00
\$67,119.00
\$63,633.00
\$62,530.00
\$62,100.00
\$61,700.00

Screenshot 3



C
GDP - per capita (PPP)
£190,513.00
£180,367.00
£123,965.00
£115,874.00
£97,341.00
£90,044.00
£86,781.00
£84,600.00
£81,798.00
£71,549.00
£70,800.00
£68,628.00
£67,119.00
£63,633.00
£62,530.00
£62,100.00
£61,700.00

Screenshot 4

Task 2.3- Turn GDP sheet into a table

To turn the GDP sheet into a table I followed below steps:

Select a cell within the data → Select Insert Table → Set the cell and click my table has headers.

The screenshot shows the Excel interface with the 'Insert' tab selected. The 'Table' button in the 'Tables' group is highlighted. Below the ribbon, the 'GDP' sheet is visible, showing columns A through H. A 'Create Table' dialog box is open, showing the data range '\$A\$1:\$D\$29' and the option 'My table has headers' checked. The dialog box also includes 'OK' and 'Cancel' buttons.

Screenshot 5

Once the table is created, we can format the table design from Home → Format as Table

	A	B	C	D
	Rank	Country	GDP - per capita (PPP)	Year of Information
1	1	Monaco	£190,513.00	2019
2	2	Liechtenstein	£180,367.00	2018
3	3	Macau	£123,965.00	2019
4	4	Luxembourg	£115,874.00	2020
5	5	Singapore	£97,341.00	2019
6	6	Qatar	£90,044.00	2019
7	7	Ireland	£86,781.00	2019
8	8	Isle of Man	£84,600.00	2014
9	9	Bermuda	£81,798.00	2019
10	10	Cayman Islands	£71,549.00	2018
11	11	Falkland Islands	£70,800.00	2015
12	12	Switzerland	£68,628.00	2019
13	13	United Arab Emirates	£67,119.00	2019
14	14	Norway	£63,633.00	2019
15	15	United States	£62,530.00	2019
16	16	Brunei	£62,100.00	2019
17	17	Gibraltar	£61,700.00	2014
18	18	Hong Kong	£59,848.00	2019
19	19	San Marino	£59,439.00	2018
20	20	Denmark	£57,804.00	2019
21	21	Netherlands	£56,935.00	2019
22	22	Jersey	£56,600.00	2016
23	23	Austria	£56,188.00	2019
24	24	Iceland	£55,874.00	2019
25	25	Germany	£53,919.00	2019
26	26	Sweden	£53,240.00	2019
27	27	Cyprus	£52,500.00	2014

< > GDP Life Expectancy Smartphones Sheet1 +

Screenshot 6

Task 2.4- Filter the table to display only the information for 2019.

To filter the table to display only information for the year 2019, Click on the Year of Information header which gives a sort or filter options. From the years list we choose the year 2019.

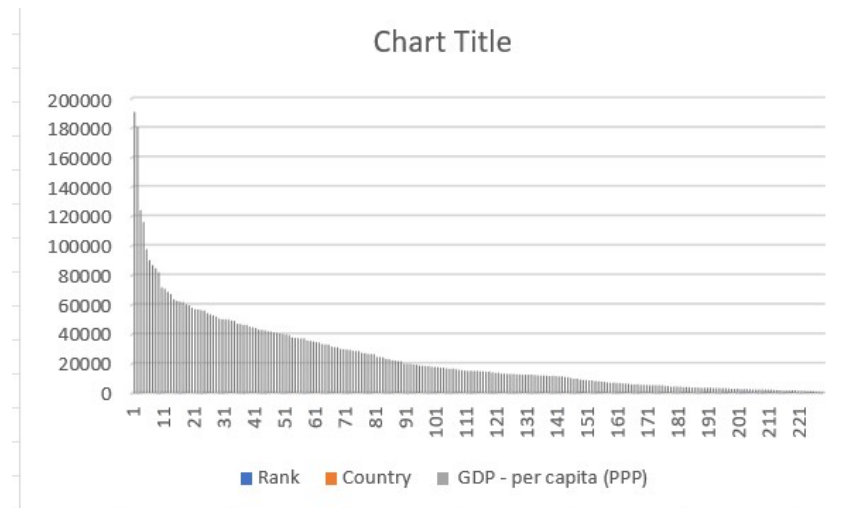
	A	B	C	D
	Rank	Country	GDP - per capita (PPP)	Year of Information
1		Monaco	£190,513.00	2019
3		Macau	£123,965.00	2019
5		Singapore	£97,341.00	2019
6		Qatar	£90,044.00	2019
7		Ireland	£86,781.00	2019
9		Bermuda	£81,798.00	2019
12		Switzerland	£68,628.00	2019
13		United Arab Emirates	£67,119.00	2019
14		Norway	£63,633.00	2019
15		United States	£62,530.00	2019
16		Brunei	£62,100.00	2019
18		Hong Kong	£59,848.00	2019
20		Denmark	£57,804.00	2019
21		Netherlands	£56,935.00	2019
23		Austria	£56,188.00	2019
24		Iceland	£55,874.00	2019

Screenshot 7

Task 2.5 - Create a chart that will only display the following data “Rank, Country and GDP – per capita (PPP)”

To create a chart:

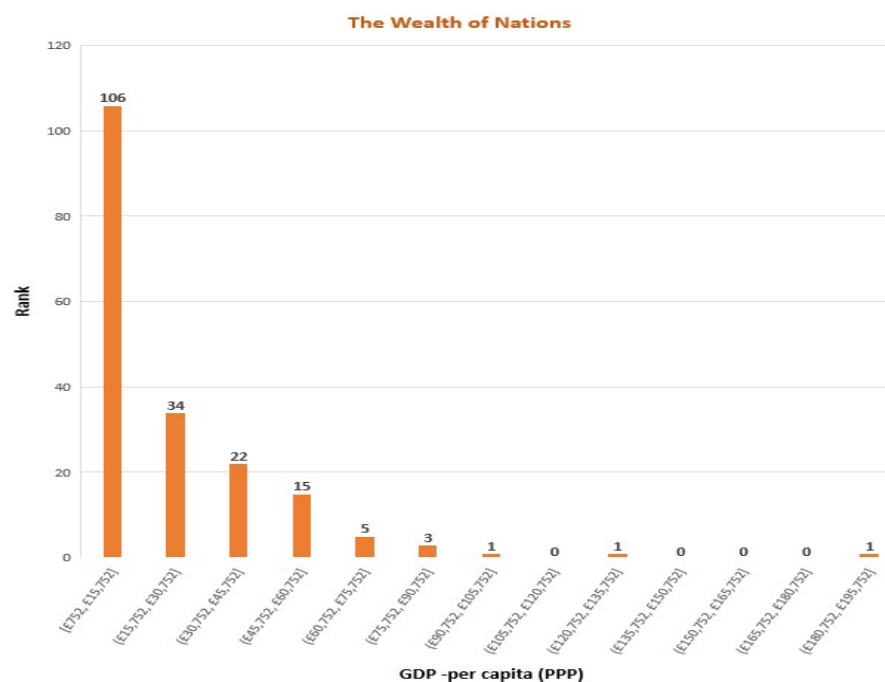
Select the data which we want to create a chart → Click Insert → Recommended Charts → Select all charts → Click any chart to see how the data will look → Once find a chart we like → Click OK.



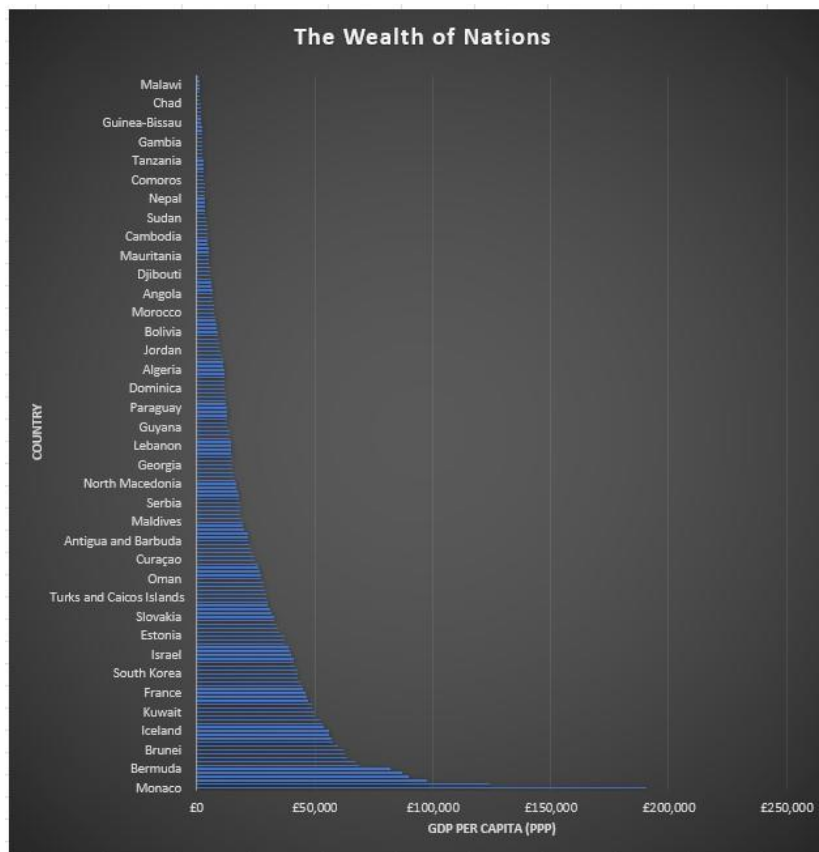
Screenshot 8

Task 2.6- Using creative skills edit the chart: Add a title, Add X and Y axis labels and Make the chart visually pleasing

Select the chart → Click on the ‘+’ sign on the right top corner of the table (chart elements) → Select Axis Title and Chart Title → Type x and y labels and chart name



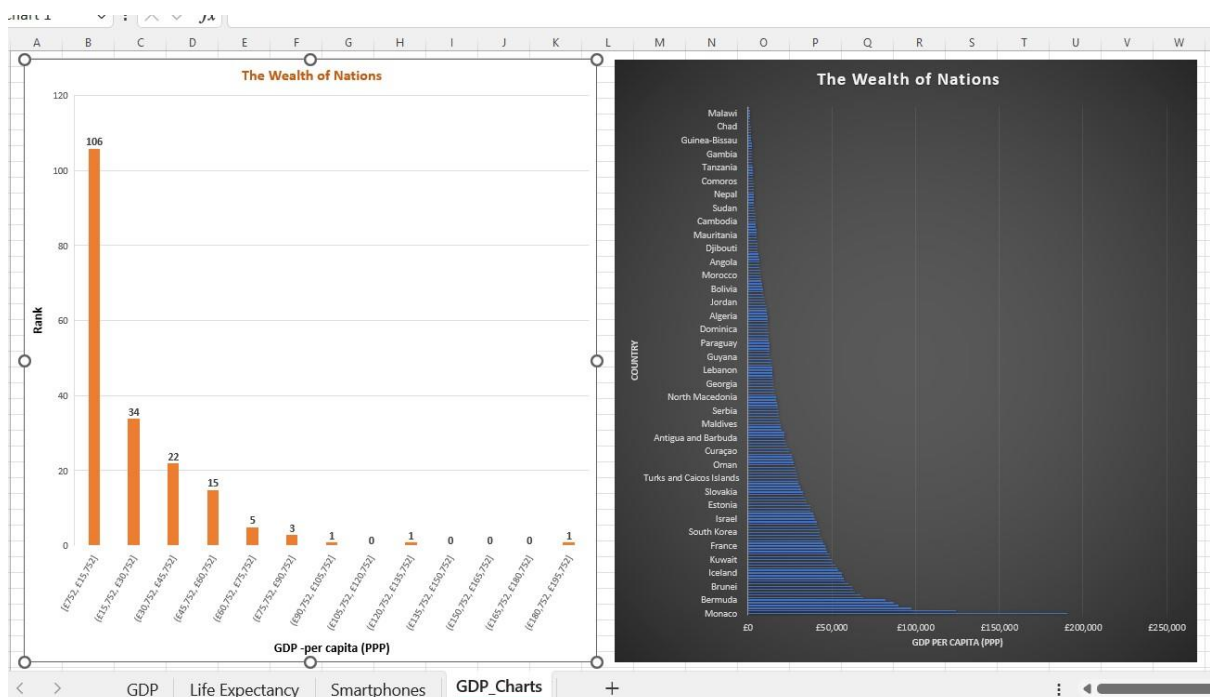
Screenshot 9



Screenshot 10

Task 2.7- Move the chart to a new sheet and label it with a suitable name

Select the charts you want to move → Ctrl + x → Open a new Excel sheet by clicking + sign on the bottom of the Excel sheet → Ctrl + v to paste the chart.



Screenshot 11

Task 2.8- Create a sort for the top 20 countries by GDP per capita

On the Excel sheet called “GDP” click on the drop-down arrow on the GDP – per capita (PPP) column.

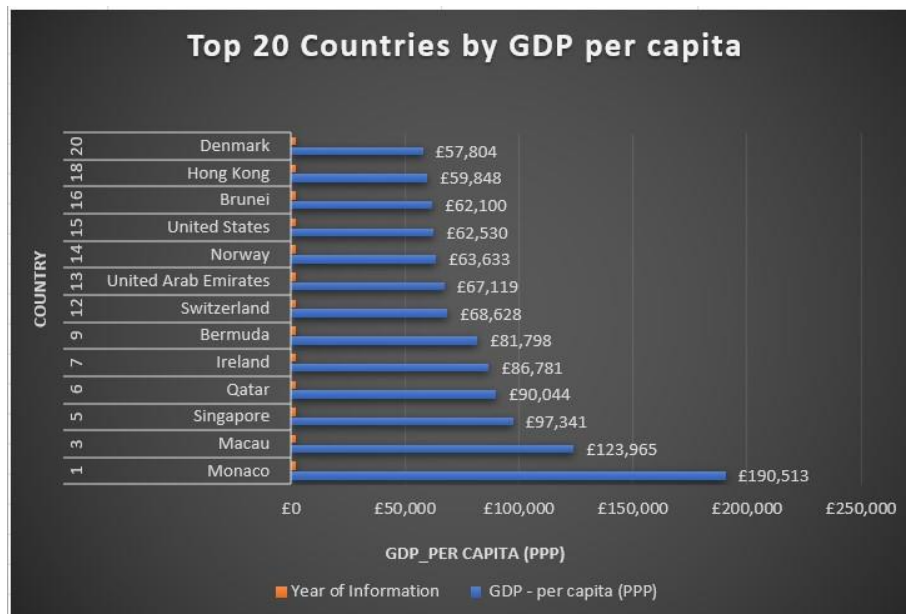
Select Number Filters → Select Top 10 → on the Top 10 Auto filter box enter 20 in the middle box.

	A	B	C	D	E	F	G	H
1	Rank	Country	GDP - per capita (PPP)	Year of Information				
2	1	Monaco	£ 190,513	2019				
3	2	Liechtenstein	£ 180,367					
4	3	Macau	£ 123,965					
5	4	Luxembourg	£ 115,874					
6	5	Singapore	£ 97,341					
7	6	Qatar	£ 90,044					
8	7	Ireland	£ 86,781					
9	8	Isle of Man	£ 84,600					
10	9	Bermuda	£ 81,798	2019				
11	10	Cayman Islands	£ 71,549	2018				
12	11	Falkland Islands	£ 70,800	2015				
13	12	Switzerland	£ 68,628	2019				
14	13	United Arab Emirates	£ 67,119	2019				
15	14	Norway	£ 63,633	2019				
16	15	United States	£ 62,530	2019				
17	16	Brunei	£ 62,100	2019				
18	17	Gibraltar	£ 61,700	2014				
19	18	Hong Kong	£ 59,848	2019				
20	19	San Marino	£ 59,439	2018				
21	20	Denmark	£ 57,804	2019				

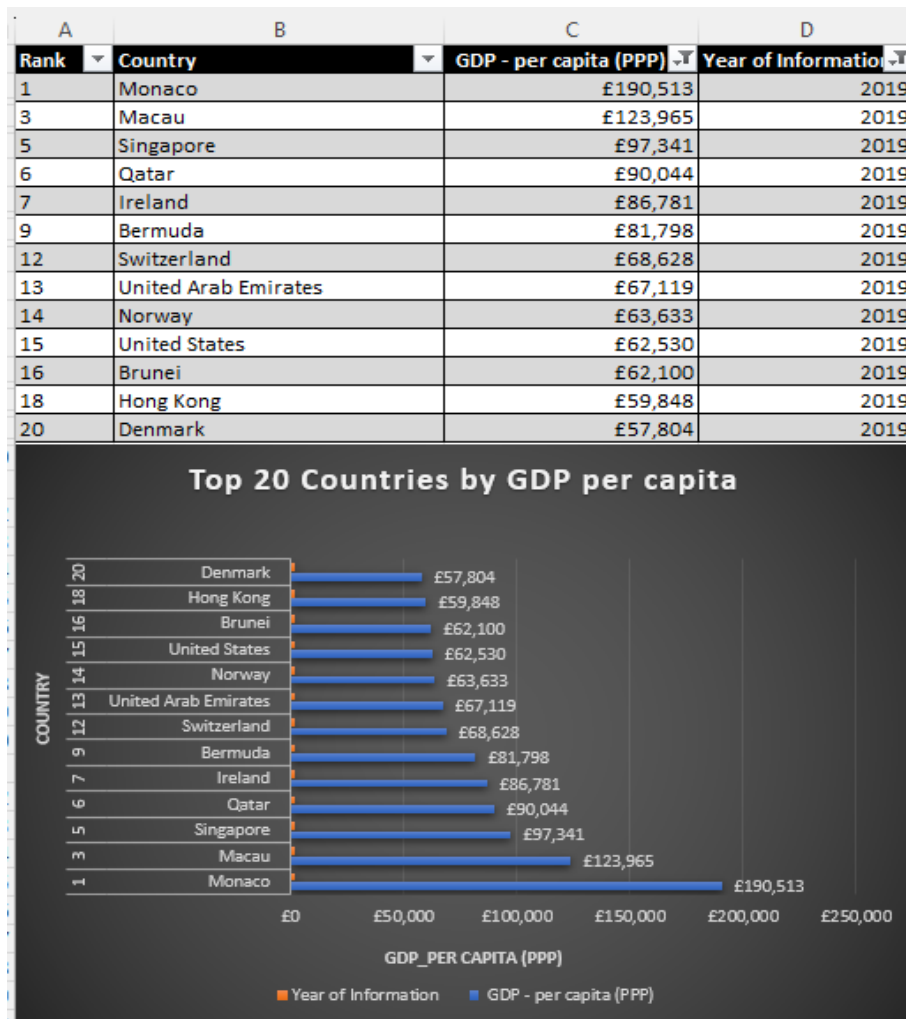
Screenshot 12

Task 2.9- Create a new bar chart to display the top 20 countries by GDP from your sort and then move the chart to be underneath the table

Click on a cell in the table → Insert a chart → Select the style of the chart → Click on the chart and move it underneath the table



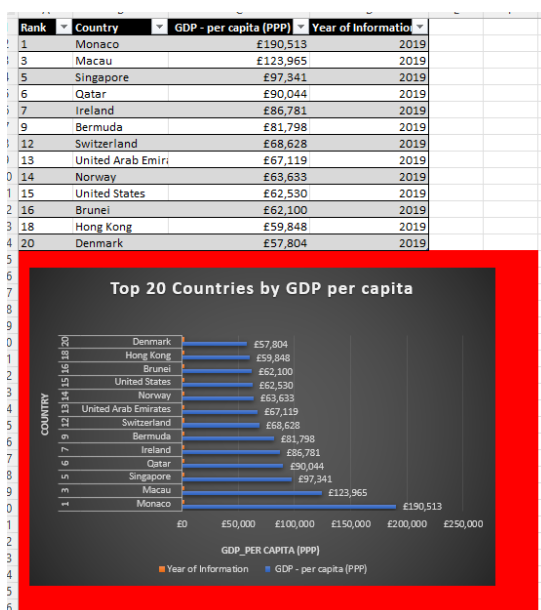
Screenshot 13



Screenshot 14

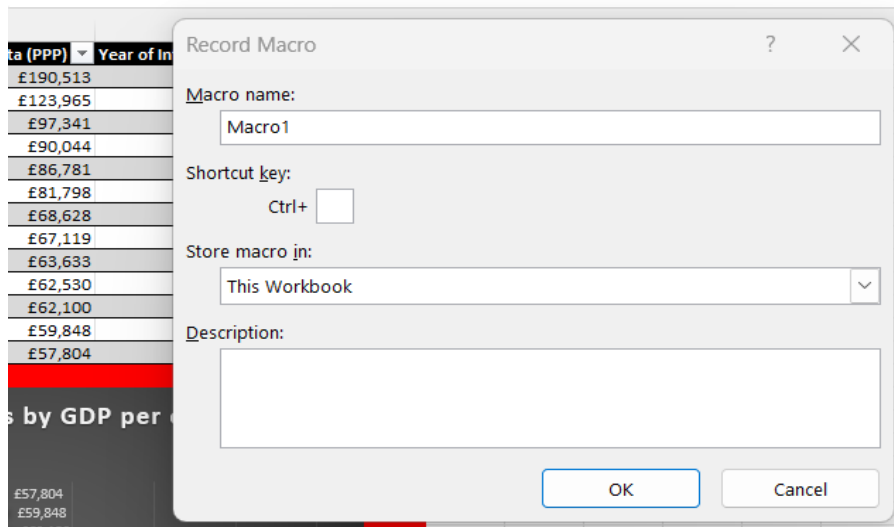
2.10- Colour the background of the table

Select the area → Click on the Home button → click on Fill Colour → Choose the colour and apply



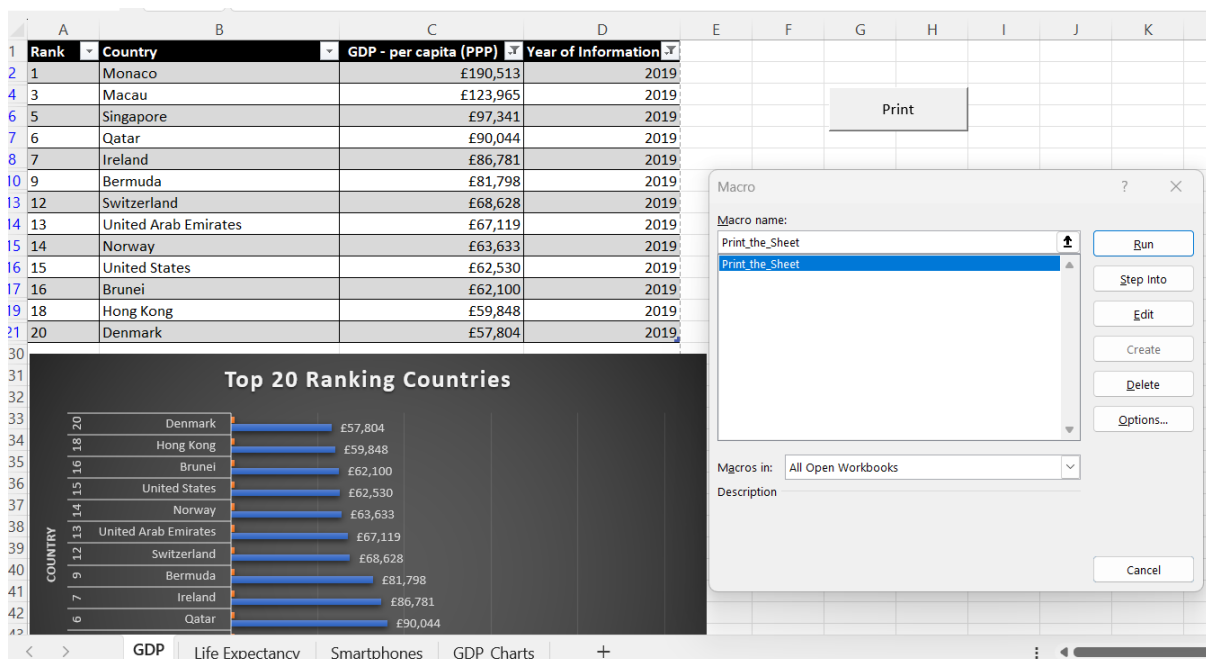
Screenshot 15

Task 2.11- Create 3 Macro buttons: Print the sheet, Save the file, and Copy the sheet
Click on the Developer on the menu bar → Select Record Macro



Screenshot 16

Optionally Name the macro and assign a shortcut key, then click OK to start.
Perform the action for “print the sheet” Once finish on the Developer tab click Stop Recording.



Screenshot 17

Rank	Country	GDP - per capita (PPP)	Year of Information
1	Monaco	£190,513	2019
3	Macau	£123,965	2019
5	Singapore	£97,341	2019
6	Qatar	£90,044	2019
7	Ireland	£86,781	2019
9	Bermuda	£81,798	2019
12	Switzerland	£68,628	2019
13	United Arab Emirates	£67,119	2019
14	Norway	£63,633	2019
15	United States	£62,530	2019
16	Brunei	£62,100	2019
18	Hong Kong	£59,848	2019
20	Denmark	£57,804	2019

Print

Record Macro

Macro name: Save_the_File

Shortcut key: Ctrl+ S

Store macro in: This Workbook

Description:

OK Cancel

Screenshot 18

On the Developer tab, in the Controls group, → Click Insert, then under Form Controls click Button
 Click the worksheet location where you want the upper-left corner of the button to appear and
 Assign a macro button → Click OK

Rank	Country	GDP - per capita (PPP)	Year of Information
1	Monaco	£190,513	2019
3	Macau	£123,965	2019
5	Singapore	£97,341	2019
6	Qatar	£90,044	2019
7	Ireland	£86,781	2019
9	Bermuda	£81,798	2019
12	Switzerland	£68,628	2019
13	United Arab Emirates	£67,119	2019
14	Norway	£63,633	2019
15	United States	£62,530	2019
16	Brunei	£62,100	2019
18	Hong Kong	£59,848	2019
20	Denmark	£57,804	2019

Print Save Copy

Screenshot 19

Task 2.12- Using the copy macro, copy the sheet and then paste it into a new Word document keeping the formatting. Give the page a title “GDP(Gross Domestic Product)”

Click on Copy macro button → Copy the sheet → Open a new Word document and paste it and title the page.

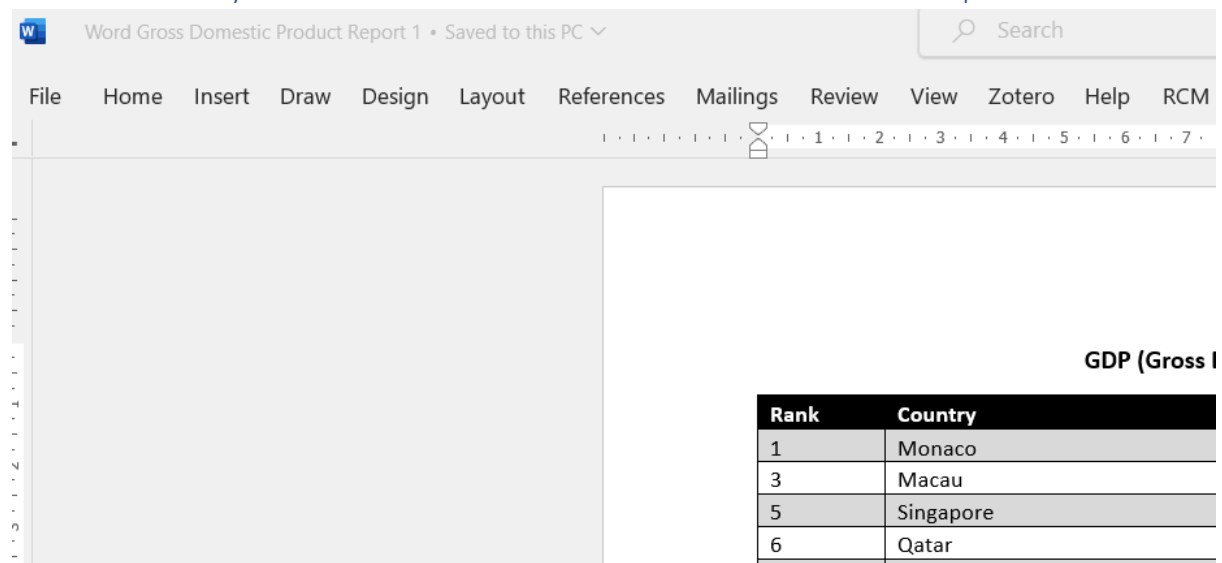
GDP (Gross Domestic Product)

Rank	Country	GDP - per capita (PPP)	Year of Information
1	Monaco	£190,513	2019
3	Macau	£123,965	2019
5	Singapore	£97,341	2019
6	Qatar	£90,044	2019
7	Ireland	£86,781	2019
9	Bermuda	£81,798	2019
12	Switzerland	£68,628	2019
13	United Arab Emirates	£67,119	2019
14	Norway	£63,633	2019
15	United States	£62,530	2019
16	Brunei	£62,100	2019
18	Hong Kong	£59,848	2019
20	Denmark	£57,804	2019



Screenshot 20

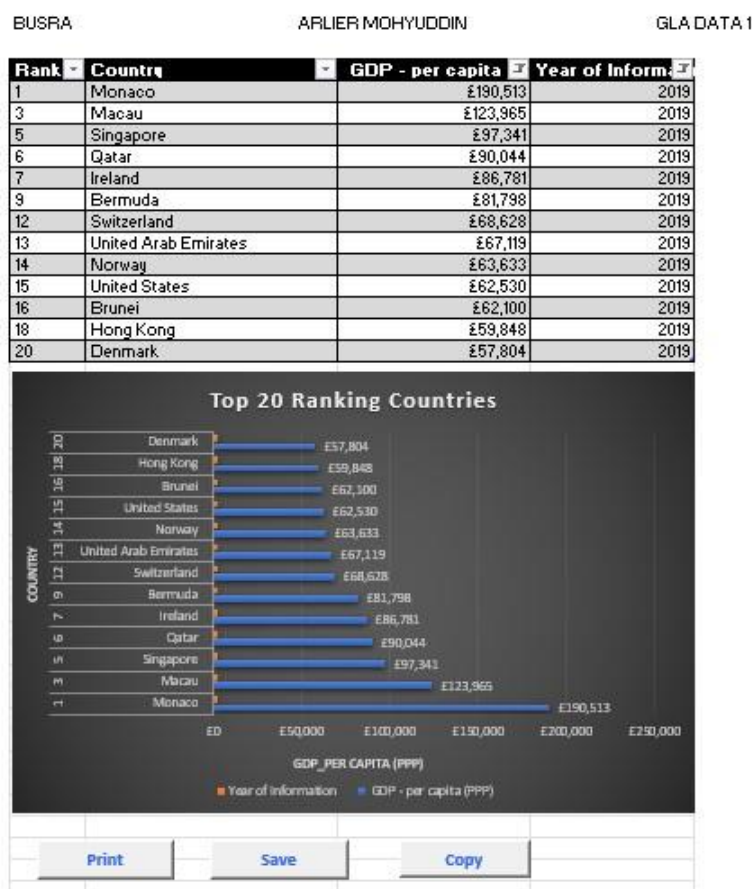
Task 2.13- Save your document as “Word Gross Domestic Product Report 1”



Screenshot 21

Task 2.14 Add header and footer on “Gross Domestic Product” sheet

Select the ‘View’ tab from the menu bar → Find the ‘workbook views’ → Select ‘Page layout icon’
Fill the three boxes for Header and Footer



Screenshot 22

Task 2.15- In the header enter your name and GLA DATA 1 in the three boxes

Header

BUSRA	ARLIER MOHYUDDIN	GLA DATA 1
-------	------------------	------------

Rank	Country	GDP - per capita (PPP)	Year of Information
1	Monaco	£190,513	2019
3	Macau	£123,965	2019
5	Singapore	£97,341	2019

Screenshot 23

Task 2.16- In the footer add a date then Assignment 1 and Data Visualisation

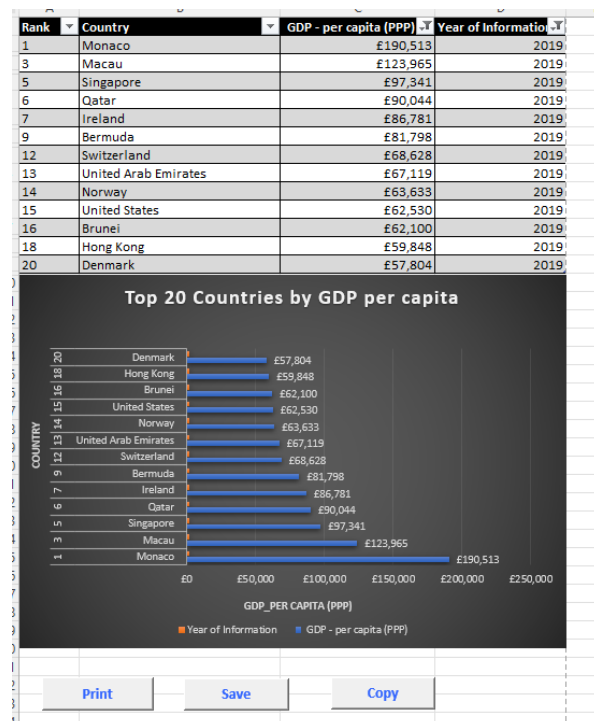
Footer

27/07/2023 Assignment 1 Data Visualisation

Screenshot 24

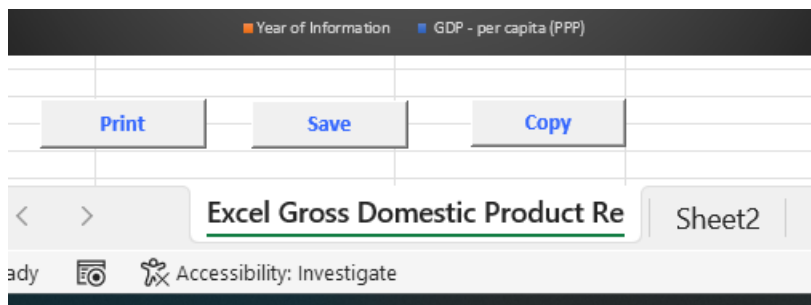
Task 2.17- Return your view to normal

To Return to your normal view → Click on Normal on the 'View' tab



Screenshot 25

Task 2.18- Save your table as “Excel Gross domestic product report 1”



Screenshot 26

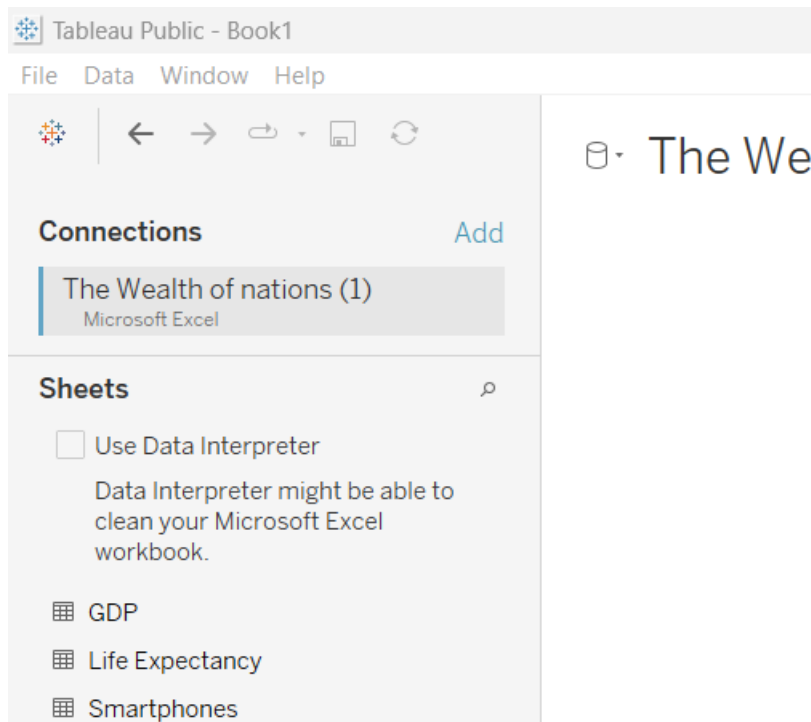
Task 2.19- Close your Word document only

Close the Work document.

Task 3 Tableau

3.1- Import Data

Open Tableau → Click Microsoft Excel → Select the file → Click on open

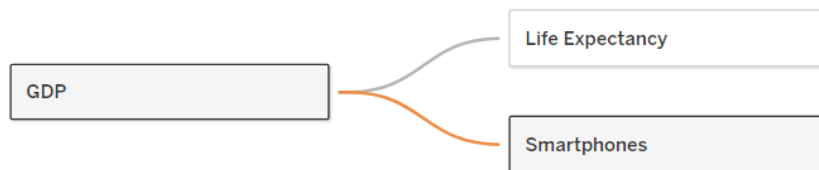


Screenshot 27

3.2- Set Relationships

Drag and drop one of these tables 'GDP', 'Life Expectancy', 'Smartphones' to Canvas → Add another table to Canvas. To set a relationship choose a field pair, then click on the list of fields below to find another pair of matching fields. For this task, we chose the 'equal' operator. → Repeat the procedures to add more tables.

GDP+ (The Wealth of nations (1))



GDP — Smartpho...

How do relationships differ from joins? [Learn more](#)

GDP Operator Smartphones

Abc Country = Abc Country (Smartph...

Smartphones

Rank (Smartph...

Screenshot 28

3.3- Check data types

1. All fields in a data source have a data type. The data type reflects the kind of information stored in that field. Click the data type icon for the field (as shown in the table above). → Choose a suitable data type from the drop-down list.

#	Life Expectancy	#	Life Expectancy	#	Life Expectancy
Rank (Smartph...	Life expectancy at birth	Life expectancy at birth	Date of Information		
	85	85	2020		
	85	85	2020		
	84	84	2020		
	84	84	2020		
	84	84	2020		
	83	83	2020		

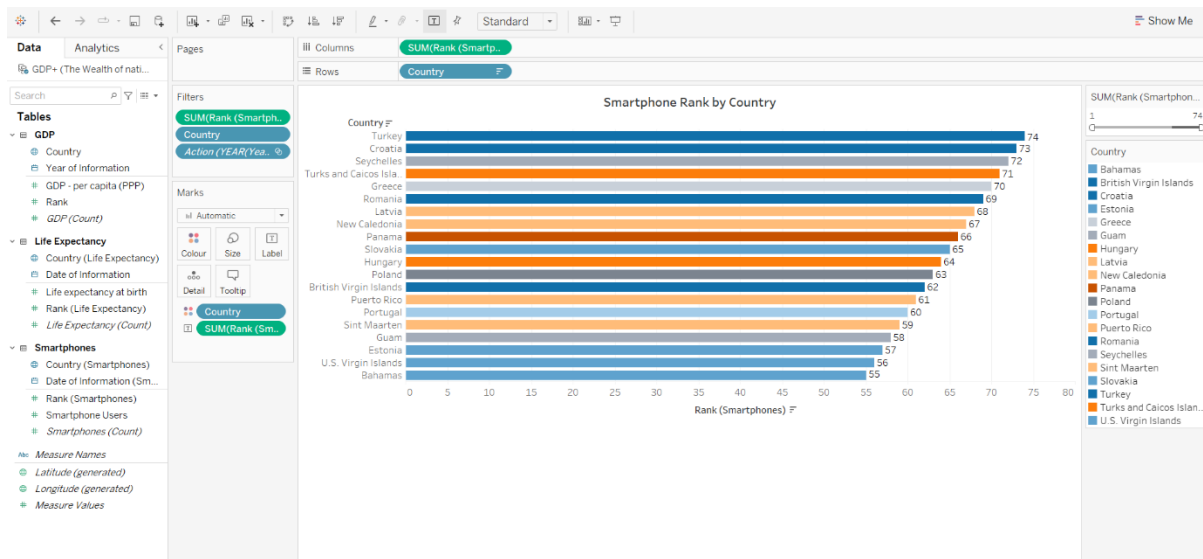
Screenshot 29

3.4- Build Charts

To create a chart that displays Smartphone Rank by Country: Drag the country dimension to Rows, Rank(smartphones) measure to Columns. → From the 'Show me Button' we can select the chart style.

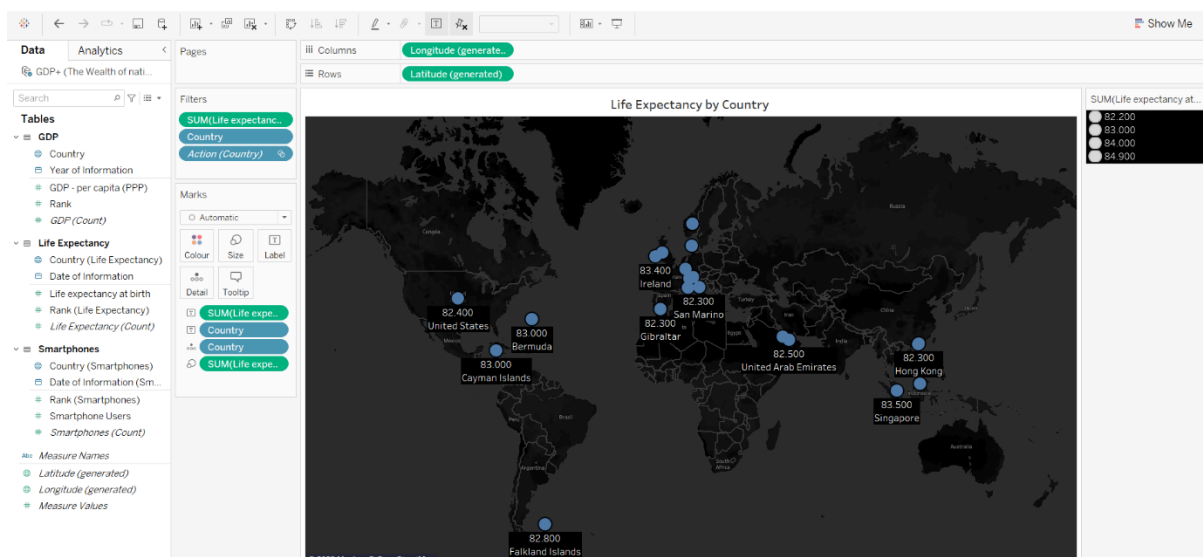
Drag the 'Country' to 'Colour' on the Marks Card → Select colour palette (Our customer is colour-blind so choose 'Colour Blind Palette' → To see the Sum(Rank) on the chart, drag the Sum(Rank) on to 'Label' on the Marks Card. → Drag the dimension or measures to the 'Filters' card to filter.

[Ctrl + Click to view Worksheet](#)



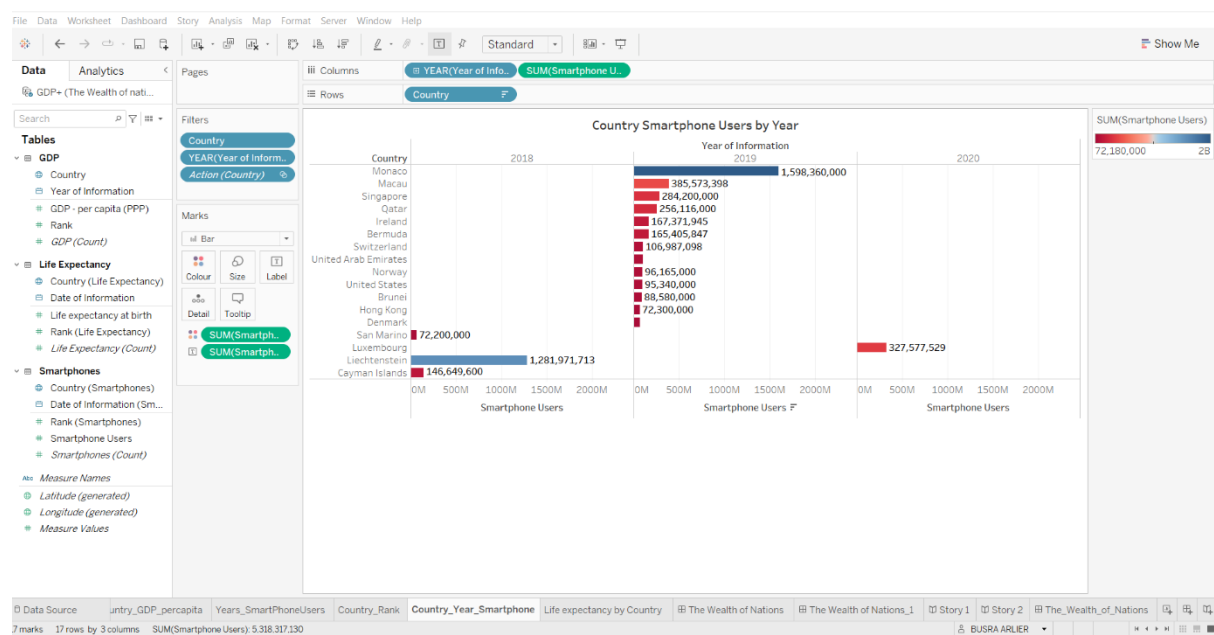
Screenshot 30

[Ctrl + Click to view Worksheet](#)



Screenshot 31

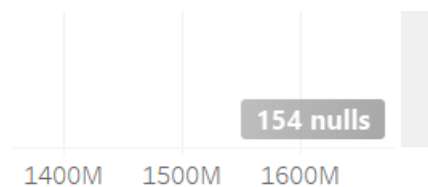
[Ctrl + Click to view Worksheet](#)



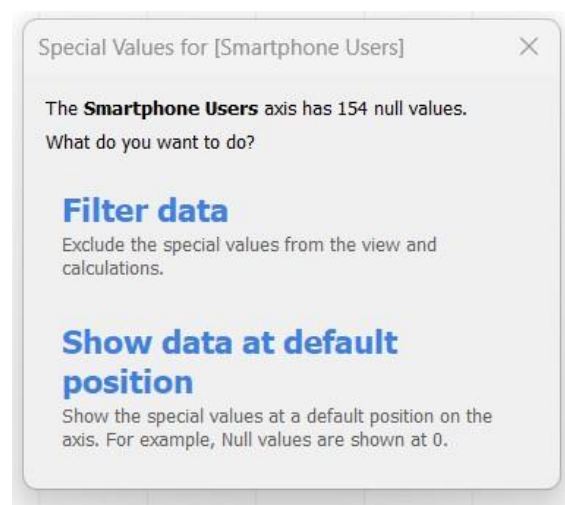
Screenshot 32

3.5- Filter the null values

If chart has 'null' values → Select 'Filter Data' option.



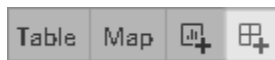
Screenshot 33



Screenshot 34

3.6- Build Dashboard

At the bottom of the workbook, Click the 'New Dashboard' icon

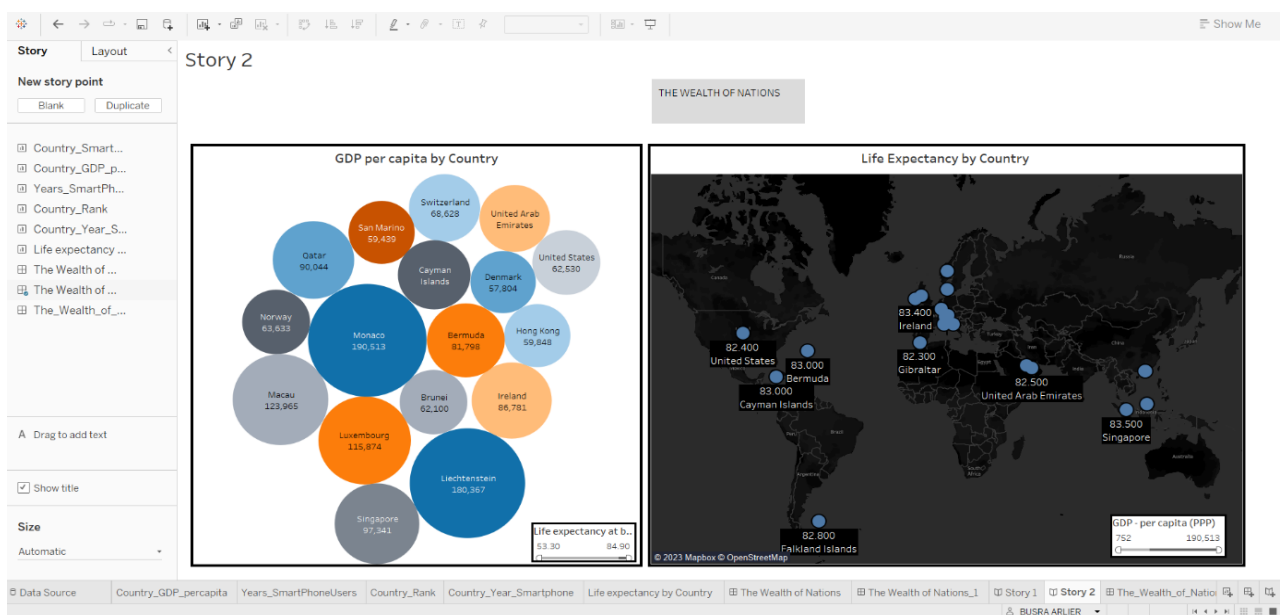


From the 'Sheets' list at left, drag views to your dashboard at right.

To replace a sheet, select it in the dashboard at right. In the Sheets list at left, hover over the replacement sheet, and click the 'Swap Sheets' button.

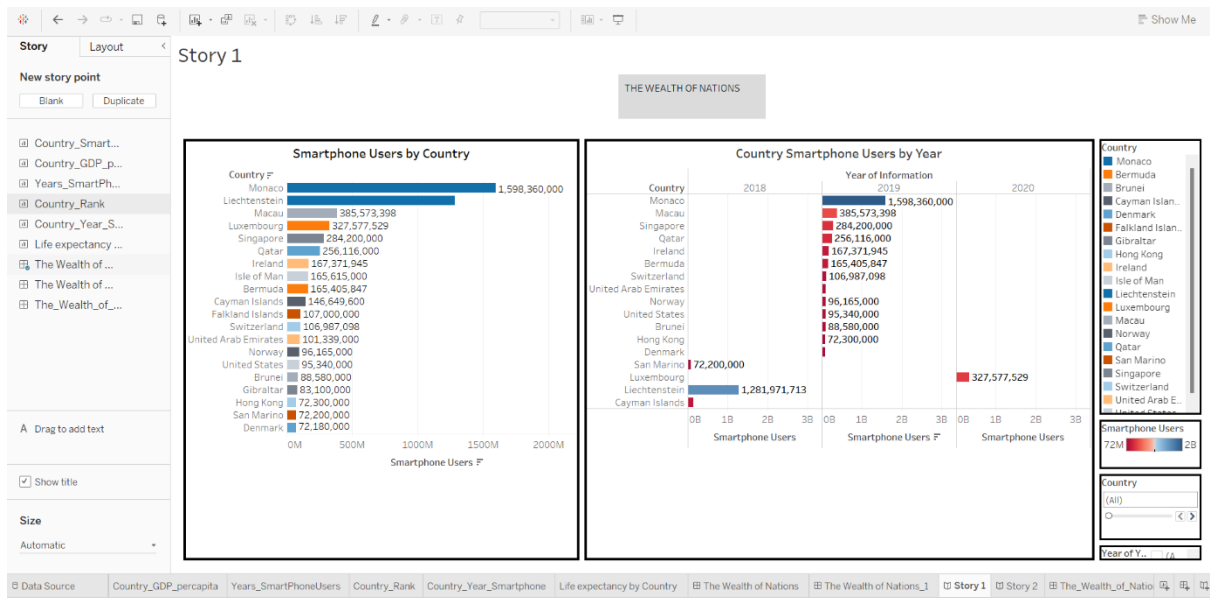
If you want to add filters, in the upper corner of the sheet, enable the 'Use as Filter' option to use selected marks in the sheet as filters for other sheets in the dashboard.

[Ctrl + Click to view Dashboard](#)



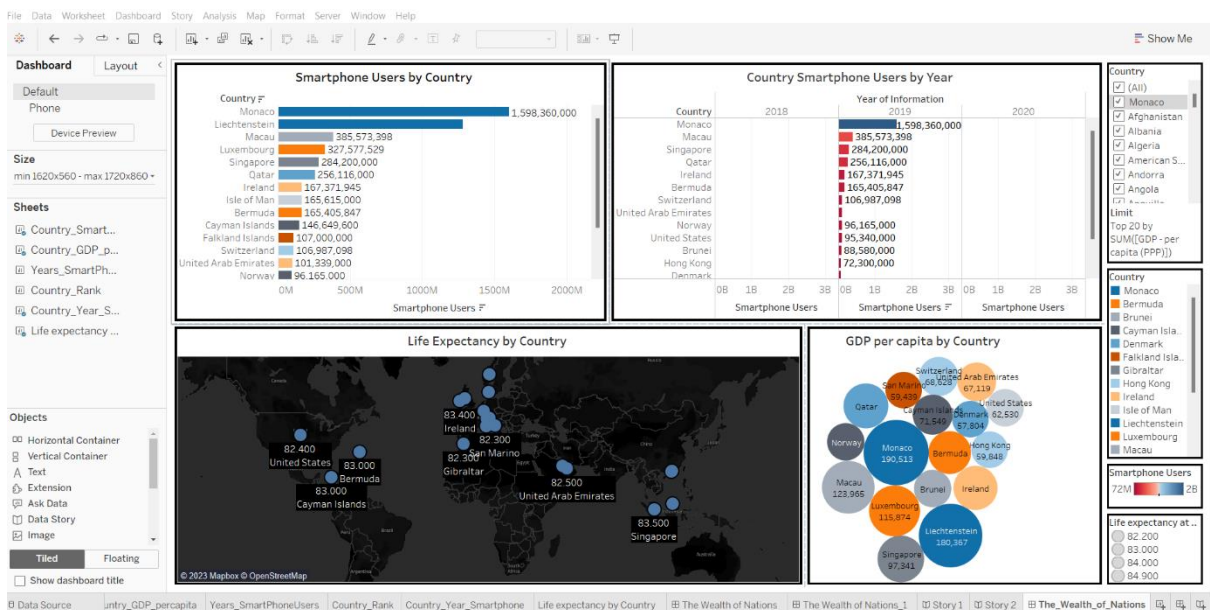
Screenshot 35

[Ctrl + Click to view Dashboard](#)



Screenshot 36

[Ctrl + Click to view Dashboard](#)



Screenshot 37

Reflection

As I embarked on my journey to explore data analysis tools, I had the opportunity to work with two powerful software solutions - Microsoft Excel and Tableau. Both Excel and Tableau have distinct features and capabilities that cater to different aspects of data analysis, making them a dynamic duo in the world of data.

Excel, a long-standing spreadsheet software, proved to be an excellent starting point for data analysis. Its familiarity and versatility made it easy for me to organize, manipulate, and calculate data. Excel's formula bar and conditional formatting features were particularly handy in creating dynamic and interactive spreadsheets.

However, handling extensive data in Excel could become overwhelming and lead to longer processing times and increased chances of errors. This is where Tableau stepped in as a game-changer. Tableau's intuitive drag-and-drop interface and interactive dashboards enabled me to quickly analyze and visualize complex datasets with ease. Moreover, Tableau's rich array of visualization options and customization capabilities allowed me to create visually appealing and insightful charts, maps, and graphs. One of the aspects that stood out about Tableau was its ability to create interactive maps which enabled me to understand geographical patterns.

In conclusion, my experience with Excel and Tableau has been transformative in the realm of data analysis. Excel provided a solid foundation for data organization and basic calculations, while Tableau elevated my analytical capabilities through interactive and visually engaging data visualizations.